

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A base station implementing physical layer automatic repeat request, including a transmitter and a receiver, the base station for receiving data in data blocks from a higher layer ARQ mechanism, the base station comprising:

a physical layer transmitter for receiving the data from the higher layer ARQ mechanism in data blocks, formatting the received data blocks into packets, the packets being smaller in size than the data blocks, each packet having a particular encoding/data modulation, transmitting the packets, and retransmitting packets in response to failure to receive a corresponding acknowledgment for a given packet;

an acknowledgment receiver for receiving the corresponding acknowledgment;

an adaptive modulation and coding controller for collecting retransmission statistics and adjusting the particular data encoding/modulation using the collected statistics;

a physical layer receiver for demodulating received packets;

a combiner/decoder for buffering, decoding and detecting packet errors;
and

an acknowledgment generator for generating an acknowledgment for each packet if that packet has an acceptable error rate; and

wherein a physical layer ARQ mechanism comprising the physical layer transmitter and the acknowledgement receiver is transparent to the higher layer ARQ mechanism.

2. (Original) The base station of claim 1 wherein the particular encoding/data modulation is forward error correction (FEC).

3. (Original) The base station of claim 2 wherein the packets are transmitted using an orthogonal frequency division multiple access (OFDMA) air interface and the FEC encoding/data modulation adjusting is performed in addition to selective nulling of subchannels in an OFDMA set.

4. (Original) The base station of claim 1 wherein the packets are transmitted using a single carrier having a frequency domain equalization (SC-FDE) air interface.

5. (Original) The base station of claim 1 whereby the base station uses a code division multiple access (CDMA) air interface and wherein the acknowledgments are transmitted on a fast feedback channel.

6. (Original) The base station of claim 1 whereby the acknowledgment generator transmits a negative acknowledgment if any packet has an unacceptable error rate.

7. (Currently amended) Physical automatic request repeat apparatus employed by a base station, the physical automatic request repeat mechanism for receiving data in data blocks from a higher layer ARQ mechanism, the physical automatic repeat apparatus comprising:

a transmitter having:

means for receiving the data blocks from the higher layer ARQ mechanism;

means for formatting the received data blocks into packets for transmission, the packets being smaller in size than the data blocks, each packet having a particular encoding/data modulation;

means for transmitting the packets;

means for retransmitting a packet, if an acknowledgment for that packet is not received;

means for collecting retransmission statistics; and

means for adjusting each particular data modulation using the collected retransmission statistics; and

a receiver having:

means for receiving packets;

means for decoding and error checking each received packet; and
means for generating an acknowledgment at the physical layer if that
received packet has an acceptable error rate; and
wherein a physical layer ARQ mechanism comprising the means for
retransmitting is transparent to the higher layer ARQ mechanism.

8. (Original) The base station apparatus of claim 7 wherein the particular
encoding/data modulation is forward error correction (FEC).

9. (Original) The base station apparatus of claim 7 wherein the packets
are transmitted using an orthogonal frequency division multiple access (OFDMA)
air interface and the FEC encoding/data modulation adjusting is performed in
addition to selective nulling of subchannels in an OFDMA set.

10. (Original) The base station apparatus of claim 7 wherein the packets
are transmitted using a single carrier having frequency domain equalization (SC-
FDE) air interface.

11. (Original) The base station apparatus of claim 7 wherein the
acknowledgments are transmitted using a code division multiple access (CDMA) air
interface on a fast feedback channel.

12. (Original) The base station apparatus of claim 7 whereby said whereby
said means for generating generates a negative acknowledgment if a packet has an
unacceptable error rate.

13-25. (Canceled).